Towards understanding road traffic accidents trends in Namibia: a knowledge discovery approach

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A road accident is a stochastic event involving a road user that results into property damage, death, disability or injury. Road traffic injuries place a heavy burden on global and national economies and household finances. With more than 13 million deaths and 20 50 million deaths being directly linked Road traffic injuries in the world, the social, economic and political burden presents a compromising scenario for Namibia. Many families are driven into poverty by the loss of breadwinners and the added burden of having to care for members who become disabled because of injuries sustained in road traffic accidents. In 2009 alone, Namibia recorded over 15,000 vehicle crashes, 4,000 injuries and about 300 deaths, and most of the drivers and passengers injured, disabled or killed fell in the age range of between 10 and 56 years, while pedestrian fell under 20 age categories. This posits an alarming trend that requires key stakeholders to step in and mine relevant information from the various causative factors. Current interventions are sporadic, uncoordinated and ineffective despite the huge economic burden exerted by the accidents. Furnished with accurate statistical data, stakeholders in road safety would be able to make informed decisions on road safety management such as enforcement of legislation to control speed, drunk driving, usage of seat belts, wearing of helmets as well as driver and vehicle fitness. This paper aims to explore different knowledge-discovery techniques through which accident data can be selected, cleansed and transformed into meaningful information. It will also highlight how different knowledge discovery approaches that can efficiently be utilized enhancing decision making for effective management of road traffic accidents.

Keywords: Road Traffic Accidents; Knowledge Discovery in Databases; Cluster Analysis; Data Mining.